

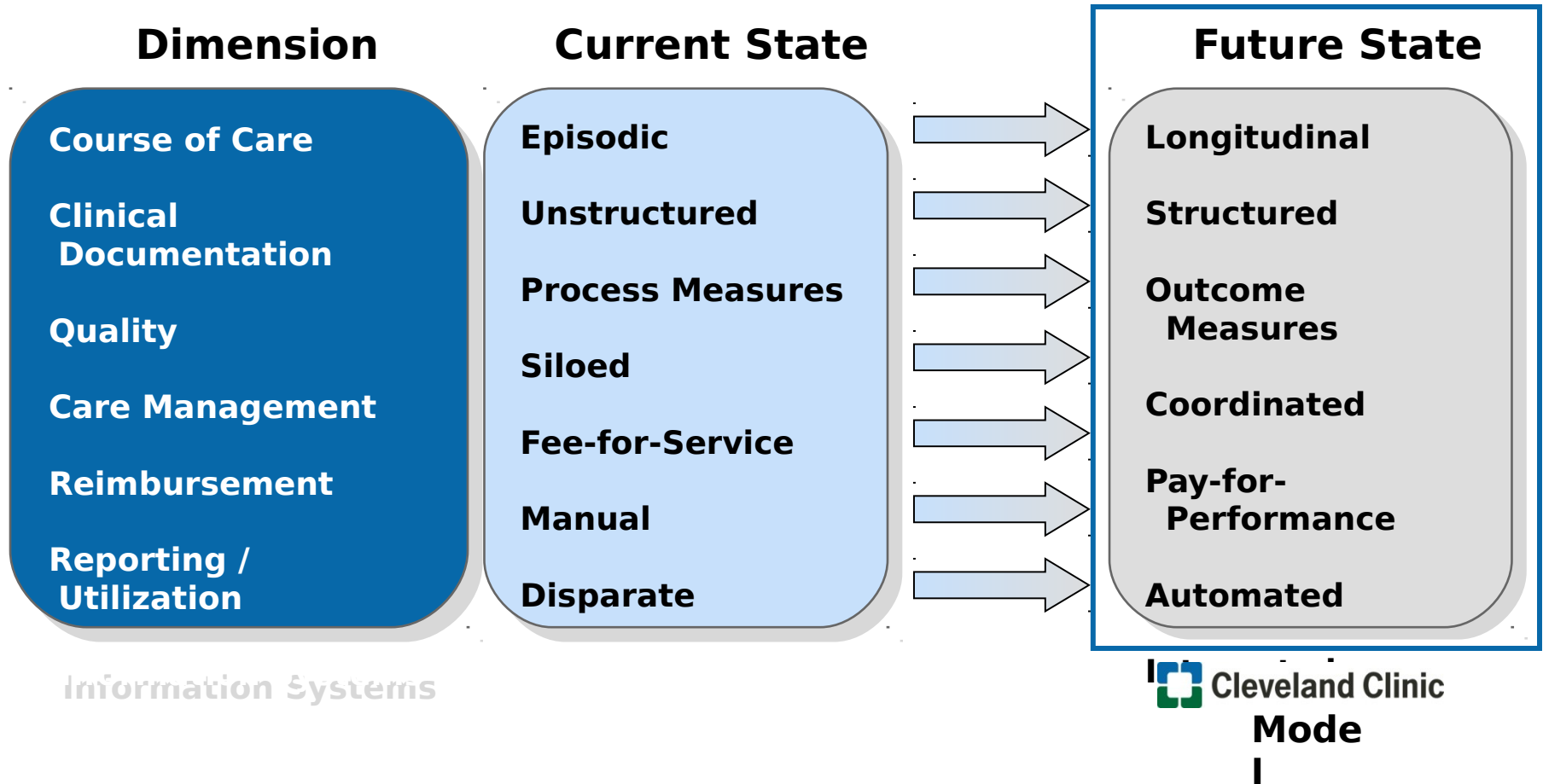


# Patient Centered Care: Institutes and Care Paths

Michael Phillips, M.D.

January 26, 2011

# Challenge and Opportunity



# CCHS Mission



**Dr. Frank E. Bunts**



**Dr. George W. Crile**

Care for the sick

Investigate their  
problems

Educate those who serve



**Dr. William E. Lower**



**Dr. John Phillips**

**“To Act as Unit”**

# Quality and Value

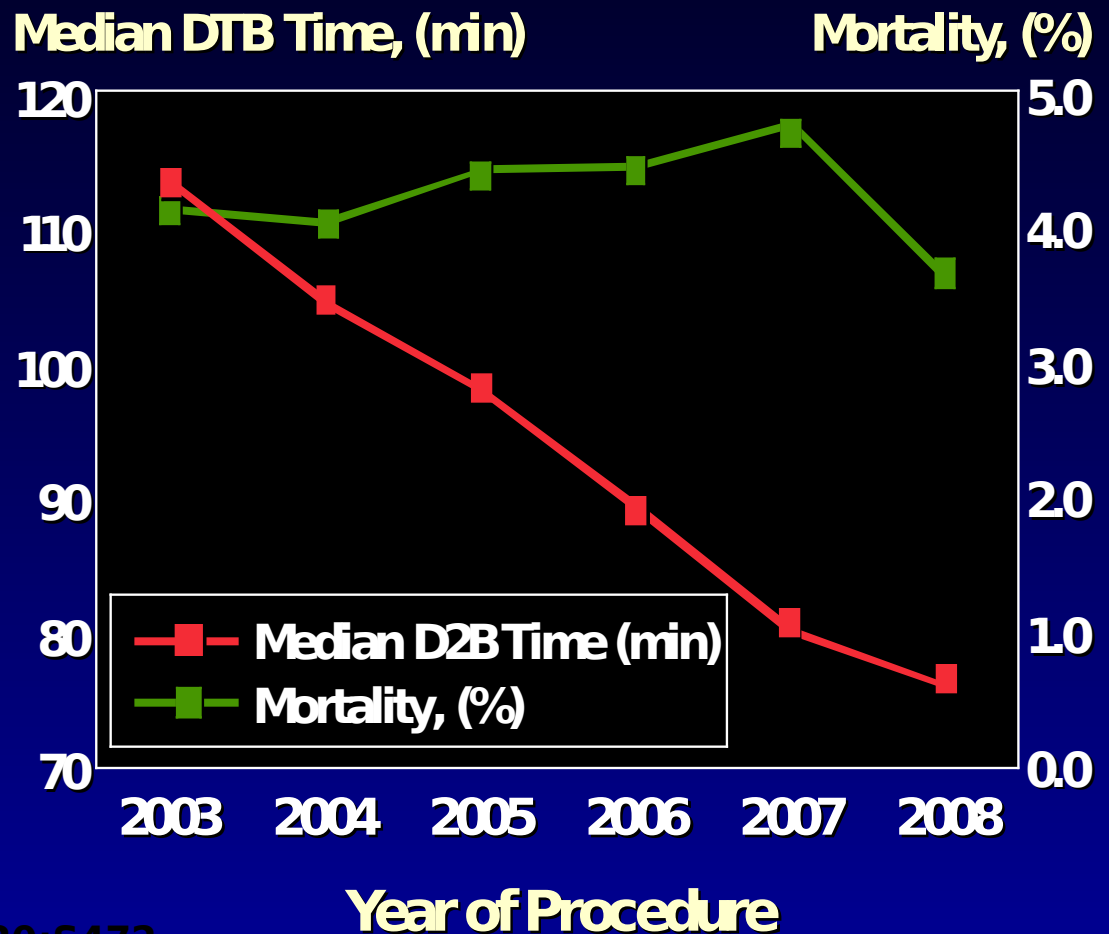
OUTCOME

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COST

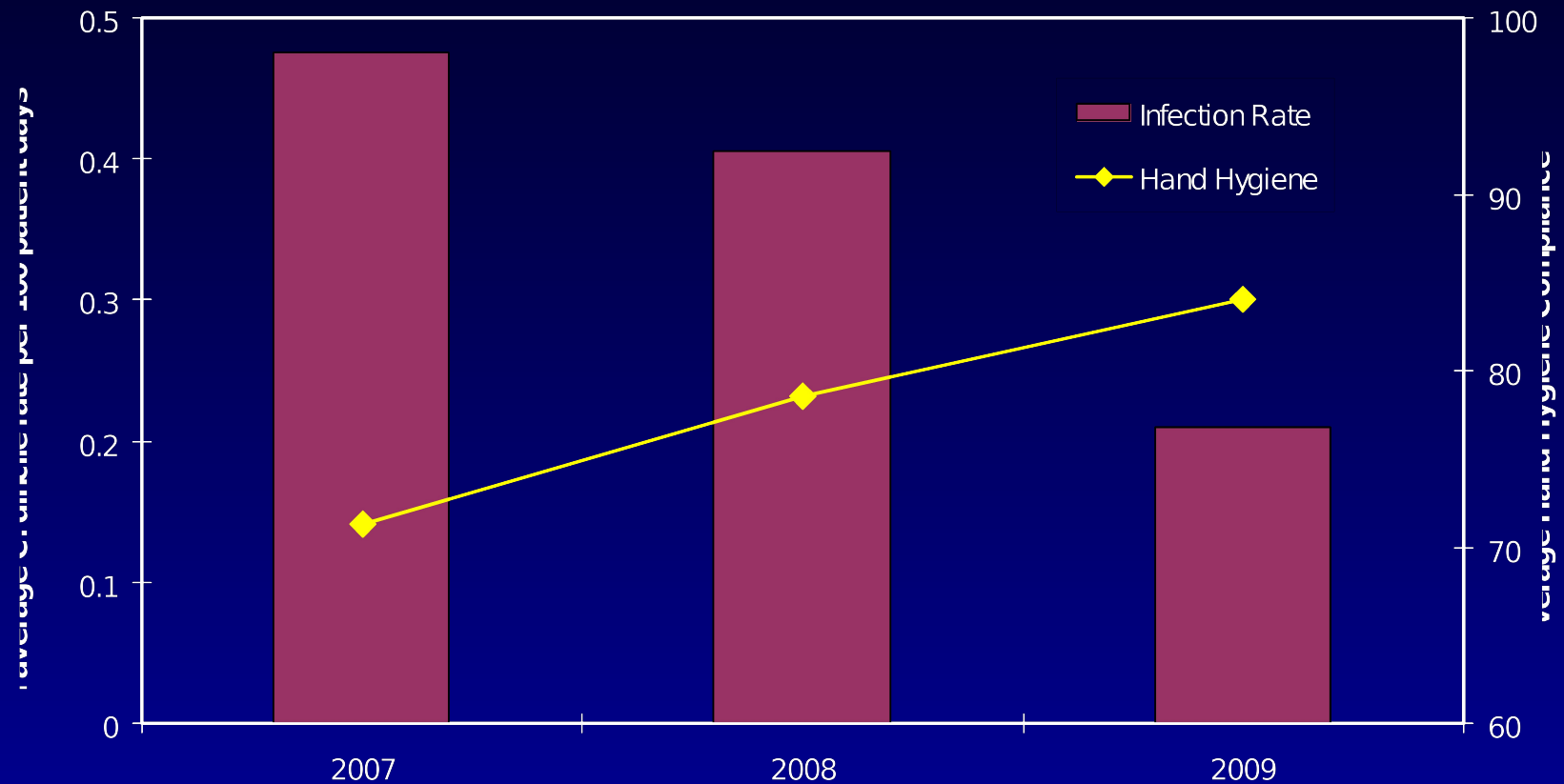
# STEMI: Door to Balloon Time and Mortality

8,770 consecutive  
STEMI  
Pts in Michigan  
BCBS  
2003-8



# Hand Hygiene vs Infection

Hand Hygiene Compliance and Nosocomial C. difficile Infection



# Our Path

Institute Model

Care Path

High Value Healthcare Collaborative

# Premises for Institute Model

The challenge is to ***improve value / quality of outcomes.***

Value is best measured at the ***disease and treatment level.***

***Multi-disciplinary*** organ-based Institutes facilitate approach

***Measurements*** will drive improvement feedback loop.

***Competition*** will become the engine of progress and reform



# Institute Themes

## Patient Centric

- Access/Convenience/Offerings/Outcomes

## Enterprise Approach

## Multidisciplinary Disease Based Centers

- Improved and New Product  
Lines/Process/Innovation

## Informatics

- Metrics/Process Improvement/Research

## Longitudinal Care

# The Neurological Institute

## Divisions/Departments

- Neurology
- Neurosurgery
- Psychiatry and Psychology
- Physical Medicine and Rehabilitation
- Neuroimaging
- Neurosciences
- Nursing
- PT/OT
- Home Care

## Centers

Brain Tumor & Neuro-Oncology Center

Neurological Center for Pain

Center for Neuroradiology

Center for Neurological Restoration

Center for Pediatric Neurology and Neurosurgery

Center for Spine Health

Center for Brain Health

Cerebrovascular Center

Epilepsy Center

Mellen Center for Multiple Sclerosis

Neuromuscular Center

Behavioral Health

Sleep Disorders Center

PM&R/Rehabilitation Services

Ranked **#6** in the country by 2010 US News & World Report

# Institute Center Themes

Clinical, education, research and business (P&L)

IT enabled standardization, outcome, quality

Multidisciplinary

- Multiple levels of care givers
- Recruitment needs identified, jointly carried out

Co-location

Continuum of care

Strategy

# Institute Department Themes

Maintain culture internally and externally

Conflict resolution

Educational Programs

New Centers

Strategy

# The Enterprise

Alignment with Health System

Coordination and evolution of Multidisciplinary Centers

- Clinical Care, Research, Education
- New Product lines and Innovation

Interaction and alignment with institutes

Evolution of product line thinking

Strategy

# Challenges

Disease versus Department

Scaling up versus scaling down

Enterprise versus Location

Product Line versus Cost Center

Inter Institute

National Perception of “Institute Model”

# Cleveland Clinic Care Pathways

**Multidisciplinary, Programmed and Imbedded  
as Part of Patient Care :**

Standardize

Measure

Educate and Study

Compare

Intervene

Improve

Disseminate

# Stroke Care Path

Excellent evidence-based data

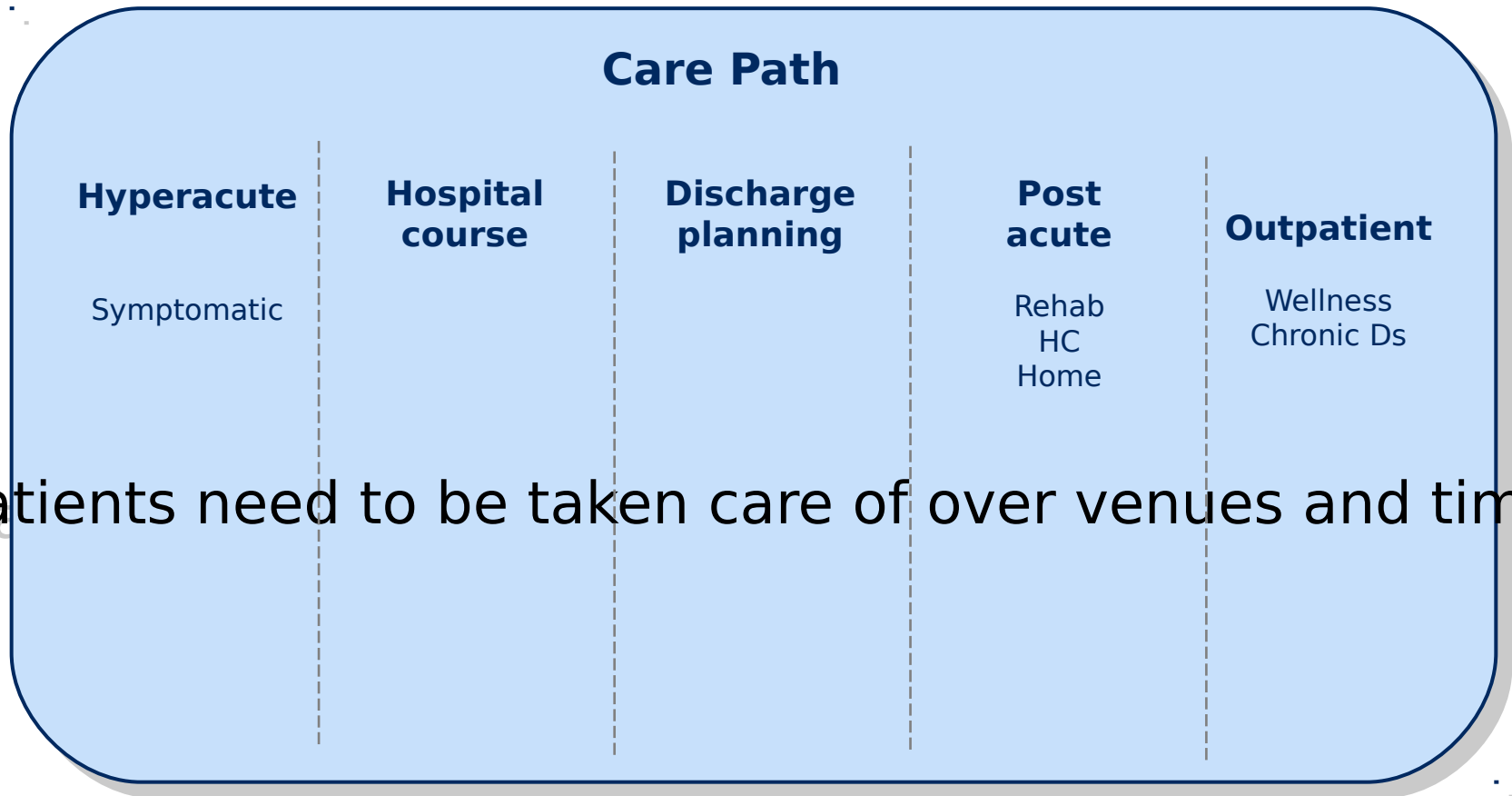
National guidelines for performance

Clear need for timely coordinated care

- Only 4% get the care they need
- 2 million neurons per minute

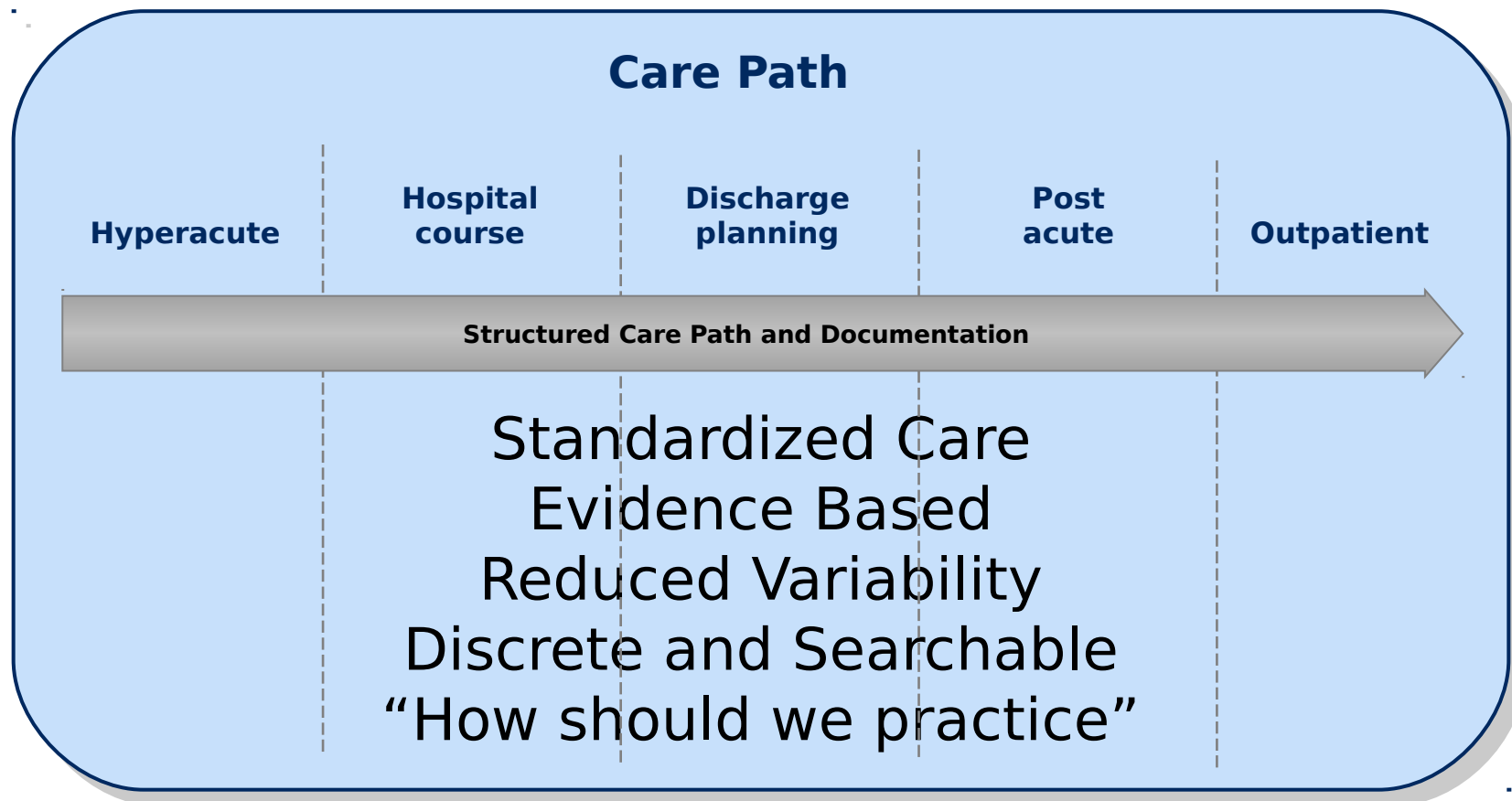


# Cleveland Clinic Care Pathways



Patients need to be taken care of over venues and time

# Cleveland Clinic Care Pathways

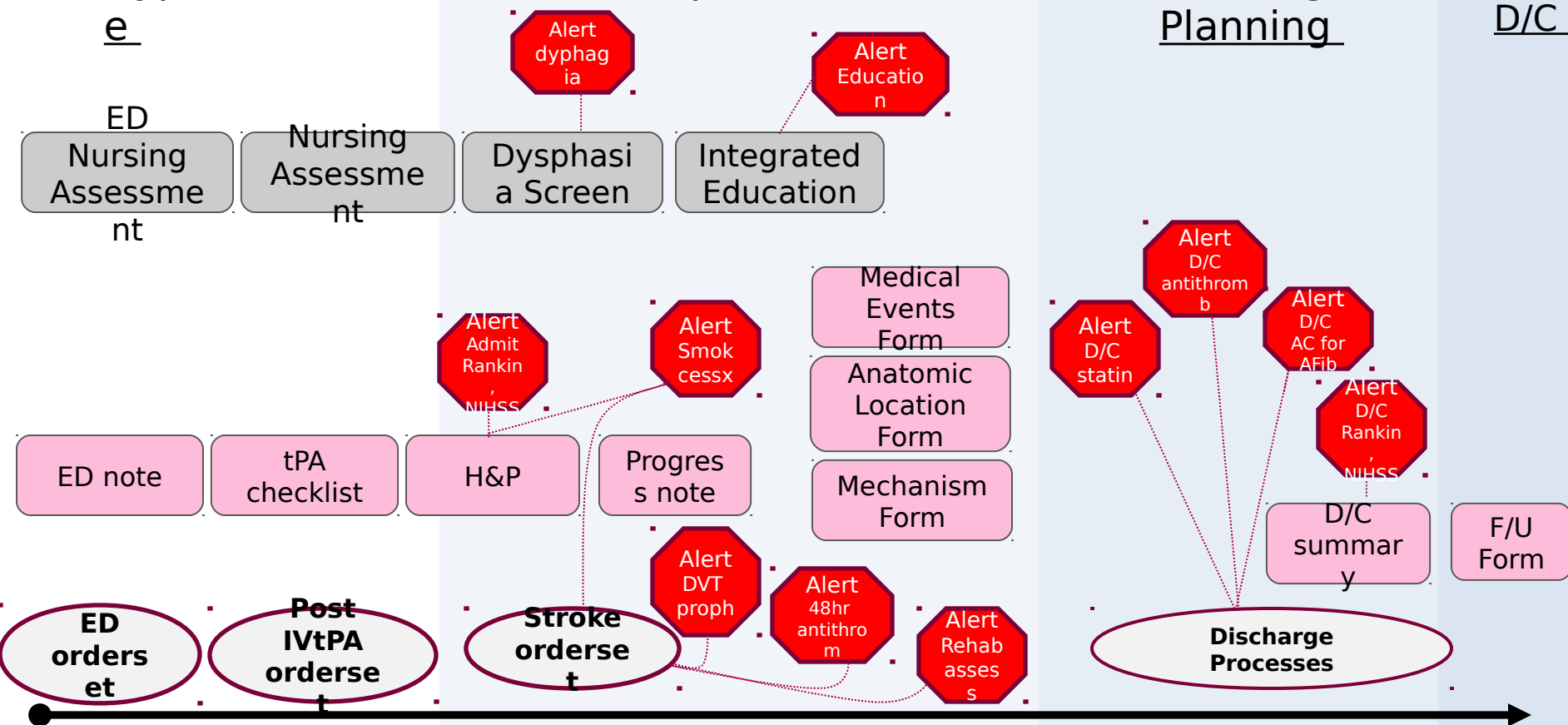


## Hyperacute

## Hospital Course

## Discharge Planning

## Post D/C



Transfer Decision Algorithm

Nursing Stroke Pathway

Critical Care Transport Protocol

Radiology Brain Attack protocol  
tPA protocol  
tPA admin protocol

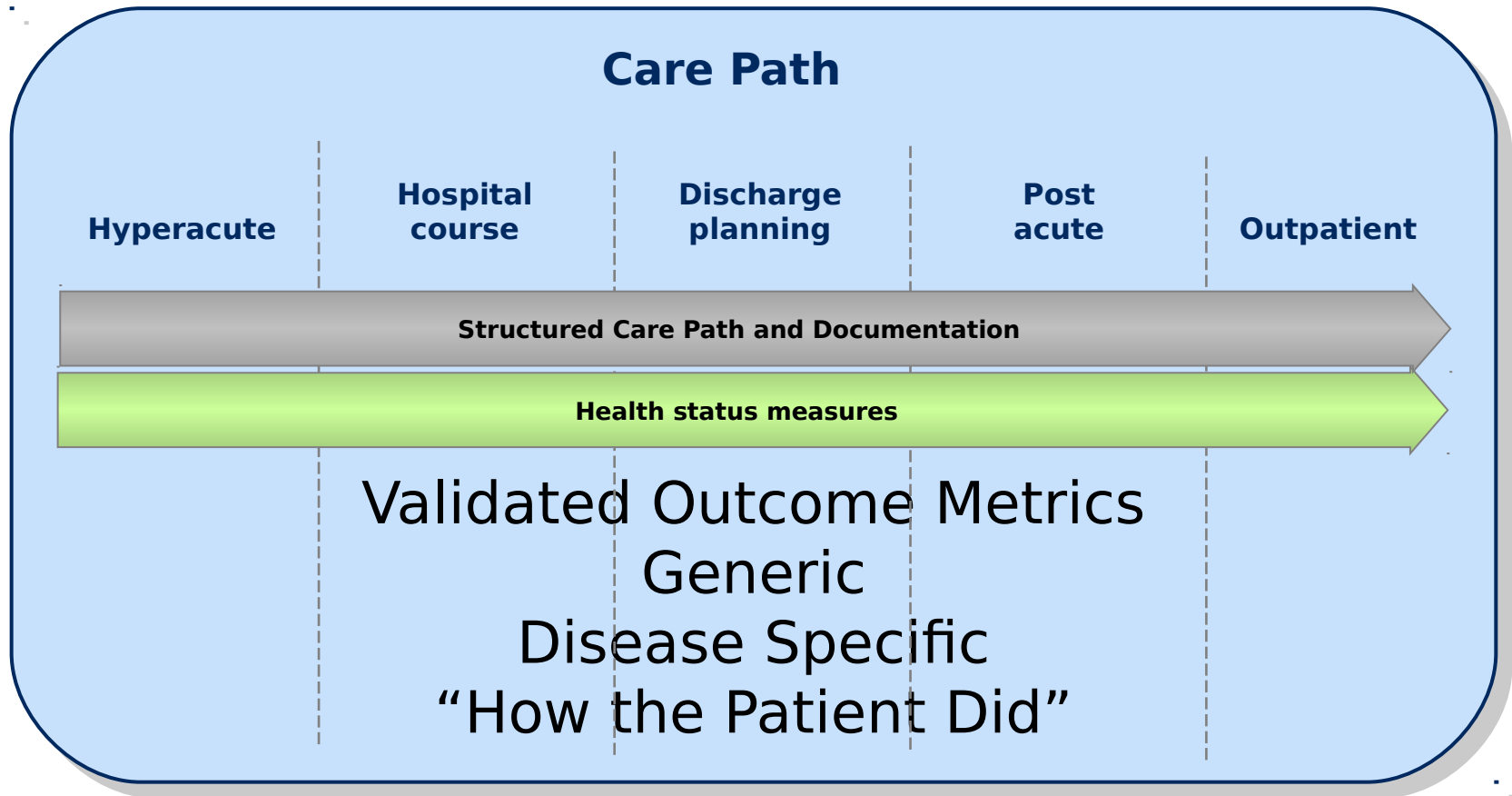
Stroke Cards

Stroke Education Packet

Patient Education Video

Research Cards

# Cleveland Clinic Care Pathways



# Efficient Clinical Workflow

Hyperacute

**BestPractice**

Dosing Weight

Hyperacute Data

Acute Stroke Results

Admission

Stroke Admission ...

Hospital Course

Carepath Mgmt

Orders

Daily NIHSS

Stroke Mechanism

**Progress Note**

Anatomic Location

F/U & Stroke8 Orde...

Medical Events

Research Studies

MR Safety Screening

Discharge

Stroke Discharge ...

ict Date: 9/24/2010

☐ 4=no movement at all (4)

☐ x=unable to assess due to amputation, fusion, etc (x)

Limb Ataxia ☐ 0=no ataxia (or aphasic, hemiplegic) (0)

☐ 1=ataxia in upper or lower extremity (1)

☒ 2=ataxia in upper and lower extremity (2)

☐ 3=unable to assess due to amputation, fusion, etc (3)

Sensory ☐ 0=normal (0)

☐ 1=mild to moderate unilateral loss but patient aware of touch (or aphasic, confused) (1)

☐ 2=total loss, patient unaware of touch, coma, bilateral loss (2)

Language ☐ 0=normal (0)

☐ 1=mild-mod aphasia (comprehensible) (1)

☐ 2=severe aphasia (almost no information exchanged) (2)

☐ 3=mute, global aphasia, coma (3)

Dysarthria ☐ 0=normal (0)

☐ 1=mild-mod slurred (1)

☒ 2=severe, unintelligible or mute (2)

☐ x=intubation or mech barrier (x)

Extinction/Neglect ☐ 0=normal, none detected (or visual loss alone) (0)

☒ 1=neglects or extinguishes to double simultaneous stimulation in any modality (1)

☐ 2=profound neglect in more than one modality (2)

Total ☐

Restore Close Cancel

Stroke Mechanism

Stroke Mechanism (TOAST)

Large Artery Atherosclerosis ☐ Unspecified

☐ Intracranial disease - anterior circulation

☐ Intracranial disease - posterior circulation

☐ Extracranial disease - anterior circulation

☒ Extracranial disease - posterior circulation

Cardioembolism ☒ High-risk source(s)

☐ Non-high-risk source(s)

Small Vessel Occlusion ☐

Stroke of Determined Etiology ☐ Other

☐ Dissection

☐ Aortic arch atheroma

Stroke of Undetermined Etiology ☐ Negative evaluation

☐ Incomplete evaluation

Cryptogenic Embolism ☐

Intracranial Hemorrhage ☐

No Stroke ☐

Restore Close

Progress Note

Arial 8 B I U S A - 125%

Insert SmartText

Abdomen: (ABDOMEN (UB)) SOFT, non-tender, no masses, hepatosplenomegaly, no tympanitum

Extremities: (extremities-lenholt:57514:a:"no cyanosis", "no clubbing", "no edema", "pedal and radial pulses 2+ bilaterally")

Neurological:

NIHSS:

LOC: alert and responsive (0)

LOC Questions: both correct (0)

LOC Commands: neither correct (2)

LOC Normal Gaze: forced gaze deviation/paresis not overcome by doll's eyes (2)

Visual Fields: no visual loss (0)

Facial Palsy: normal (0)

Motor Left Arm: no drift (0)

Motor Right Arm: no drift (0)

Motor Left Leg: some antigravity effort but cannot sustain (2)

Motor Right Leg: some antigravity effort but cannot sustain (2)

Limb Ataxia: ataxia in upper and lower extremity (2)

Sensory: normal (0)

Language: normal (0)

Dysarthria: severe, unintelligible or mute (2)

Extinction/Neglect: neglects or extinguishes to double simultaneous stimulation in any modality (1)

Total: 13

ASSESSMENT:

Stroke Mechanism:

Cardioembolism (High-risk source(s))

Reported by SPECK DBM, MICHEAL on 01/21/2011 9:59 AM

- **Stroke 8:**

Stroke Prevention:

Antithrombotic therapy: Ordered,

• LOVENOX 100 MG/ML SUB-Q	100 mg	
---------------------------	--------	--

Statin therapy: Ordered,

• atorvastatin	40 mg	q HS
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Blood pressure control:

Optimum range: 120-140.

Treatment range for PRN medications: >> 180.

	10/14/2010 7:35 AM	10/14/2010 3:00 PM	10/15/2010 12:00 AM	10/15/2010 7:35 AM
BP:	121/81	107/78	112/61	127/76

Glycemic control: Well controlled.

Prevention of Complications:

DVT prophylaxis: Ordered,

• heparin	5,000 Units	TID
-----------	-------------	-----

Temperature: Normothermic.

	10/14/2010 7:35 AM	10/14/2010 3:00 PM	10/15/2010 12:00 AM	10/15/2010 7:35 AM
Temp:	97.3 °F (36.3 °C)	96.8 °F (36 °C)	98.8 °F (37.1 °C)	98.2 °F (36.8 °C)

Fluids and nutrition: Regular diet.

**Orders Placed This Encounter**

Regular diet  
NPO EXCEPT MEDS  
NPO EXCEPT MEDS

Recovery and Disposition:

Mobility and therapy:

**Orders Placed This Encounter**

OT CONSULT - START TODAY  
PT CONSULT - START TODAY

- Disposition: **Acute rehab.**
- Follow up appointments:
  1. Cerebrovascular: Pending
  2. Primary Care: pending

## Hyperacute

BestPractice  
Dosing Weight  
Key Metrics Edit  
Acute Stroke Results

## Admission

Stroke Admission ...

## Hospital Course

Carepath Mgmt  
Orders  
Daily NIHSS  
Stroke Mechanism  
**Progress Note**  
Anatomic Location  
F/U & Stroke8 Orde...  
Medical Events  
Research Studies  
NIHSS Report  
NIHSS Audit  
NIHSS Edit  
MR Safety Screening

## Discharge

Stroke Discharge ...

## Progress Note

ID: NO acute issues

## Stroke 8:

## Stroke Prevention:

Antithrombotic therapy: Ordered..

• LOVENOX 100 MG/ML SUB-Q 100 mg

Statin therapy: Ordered..

• atorvastatin 40 mg q HS

Blood pressure control:

Optimum range: 120-140.

Treatment range for PRN medications: &gt;&gt; 180.

	10/14/2010 7:35 AM	10/14/2010 3:00 PM	10/15/2010 12:00 AM	10/15/2010 7:35 AM
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Fluids and nutrition: Regular diet.

## Orders Placed This Encounter

Regular diet

NPO EXCEPT MEDS

Recovery and Disposition:

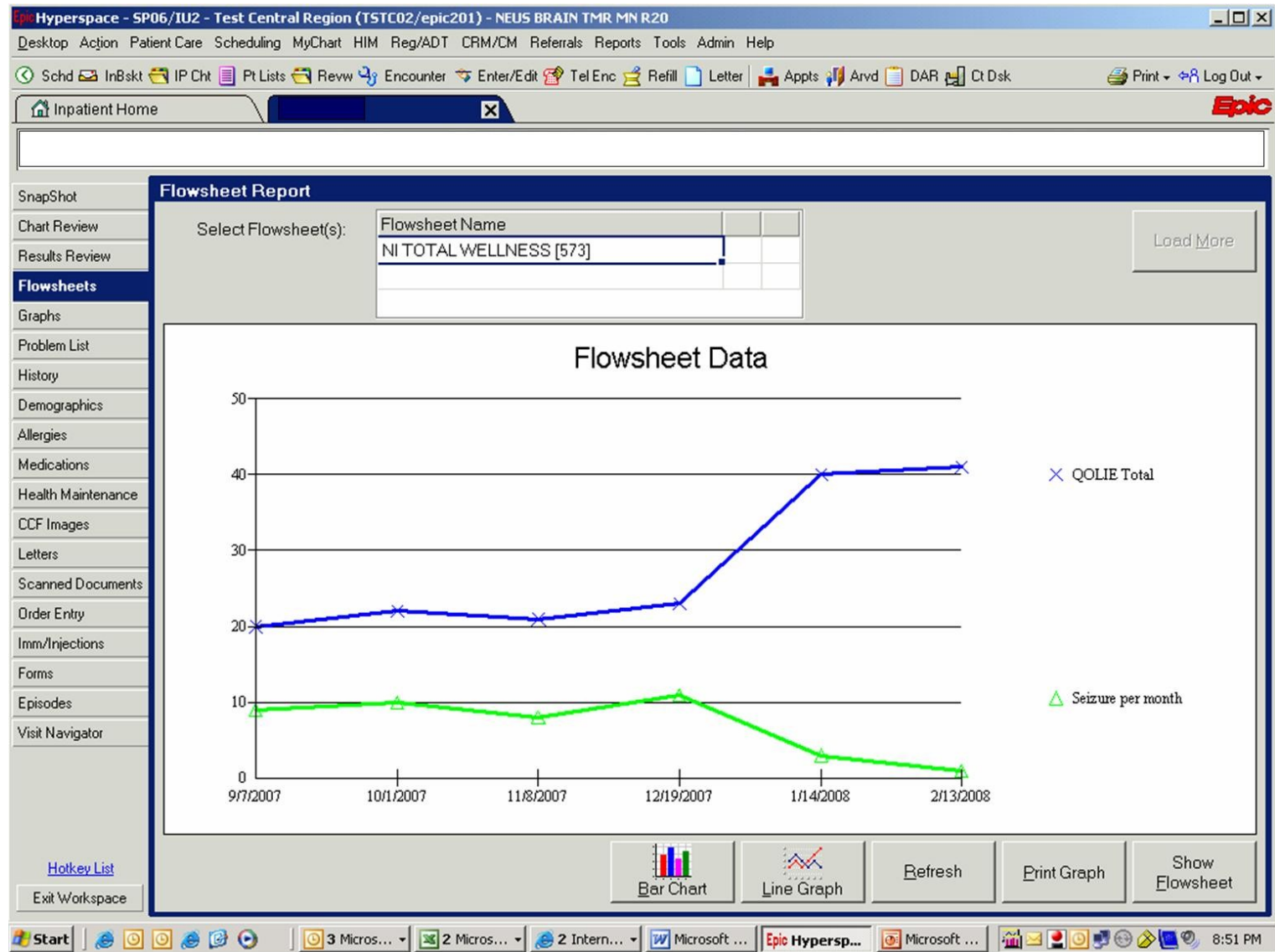
Mobility and therapy:

## Orders Placed This Encounter

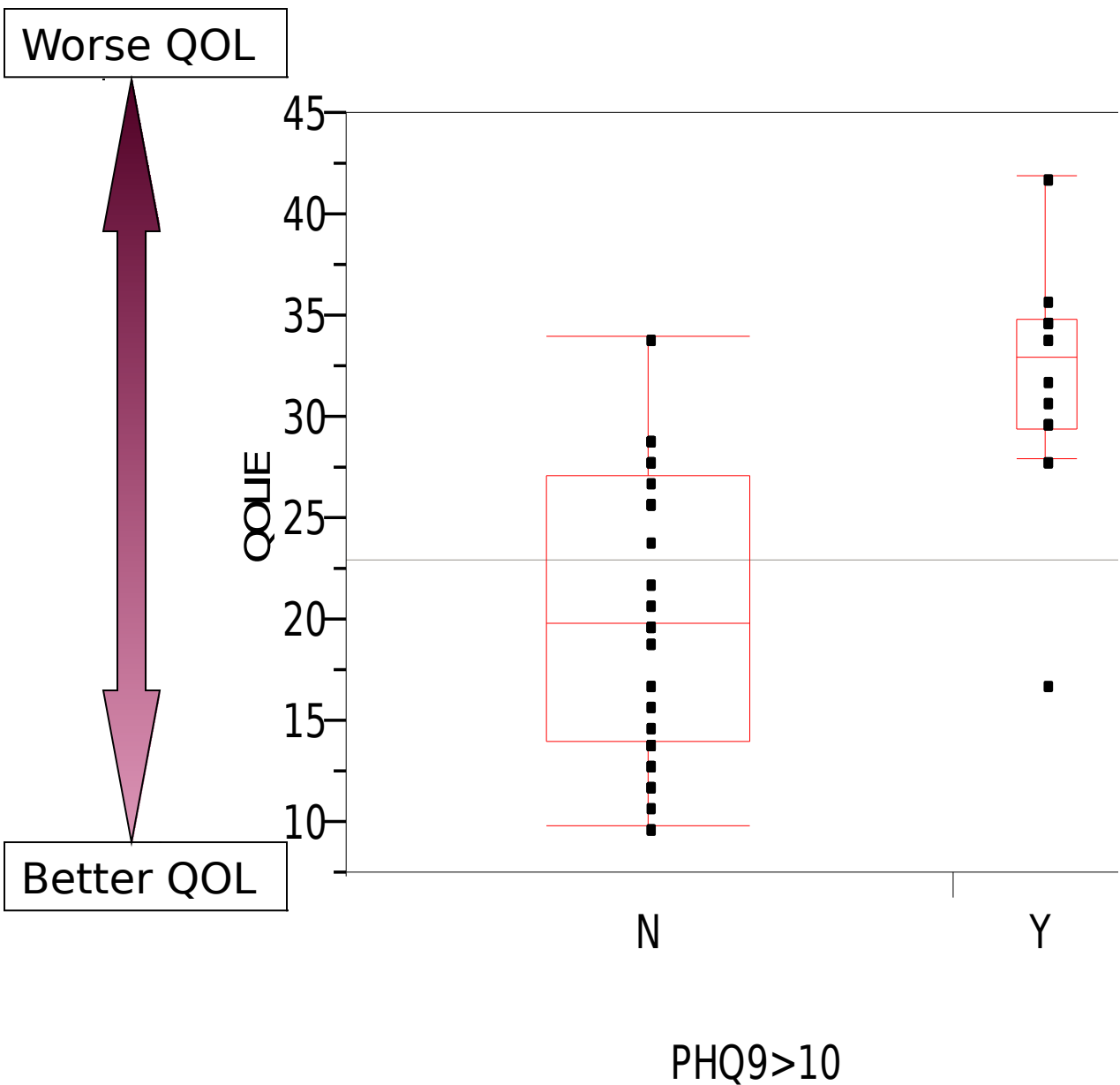
OT CONSULT - START TODAY

PT CONSULT - START TODAY

# How is the patient

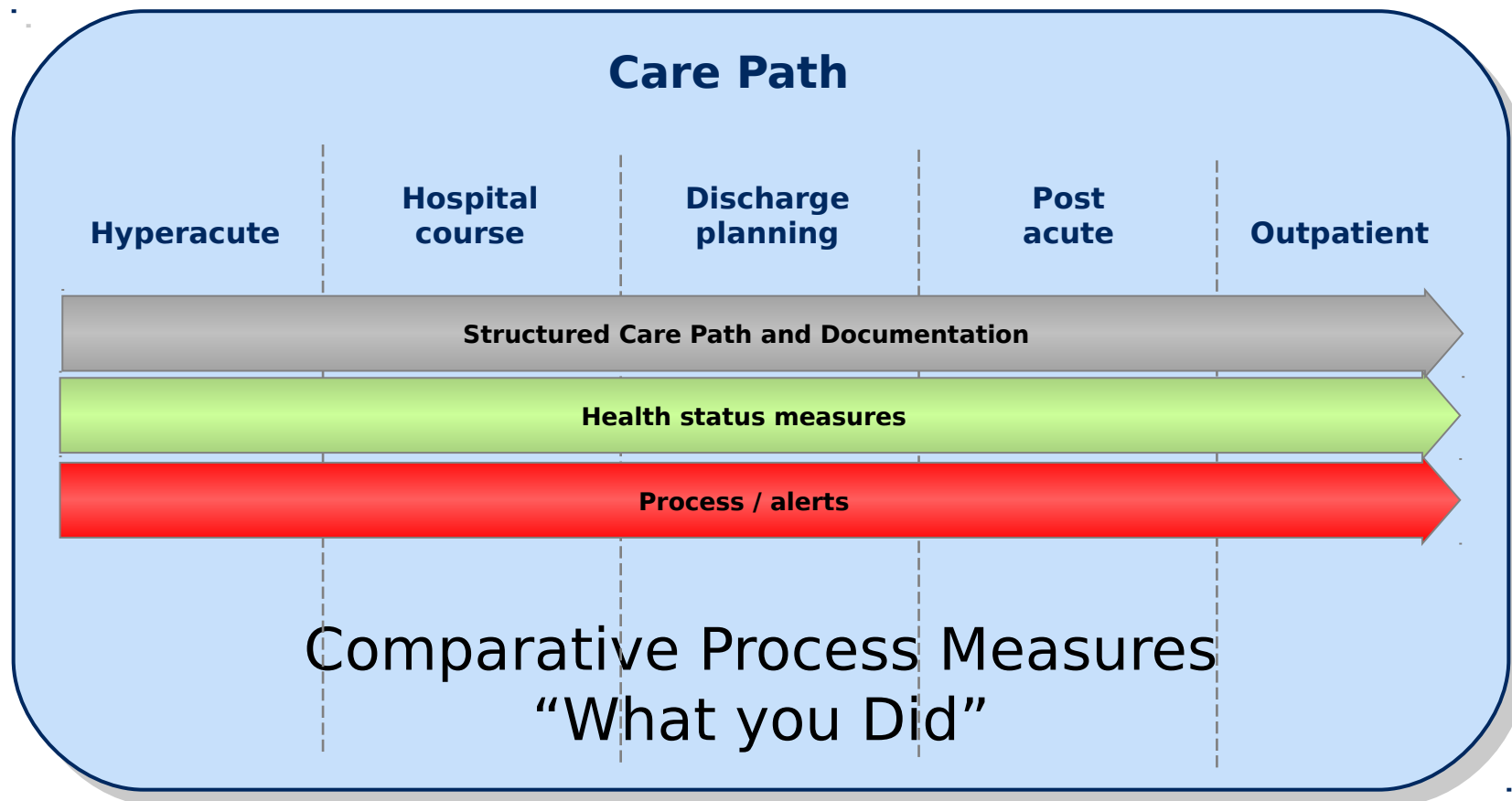






Depressed epilepsy patients (with PHQ-9 score > 10) have a worse quality of life, as reflected by higher QOLIE score (Mean of 31.9 vs 20.3;  $p < 0.0001$ ):

# Cleveland Clinic Care Pathways



# Time Variables for Acute Evaluation – Patient Level

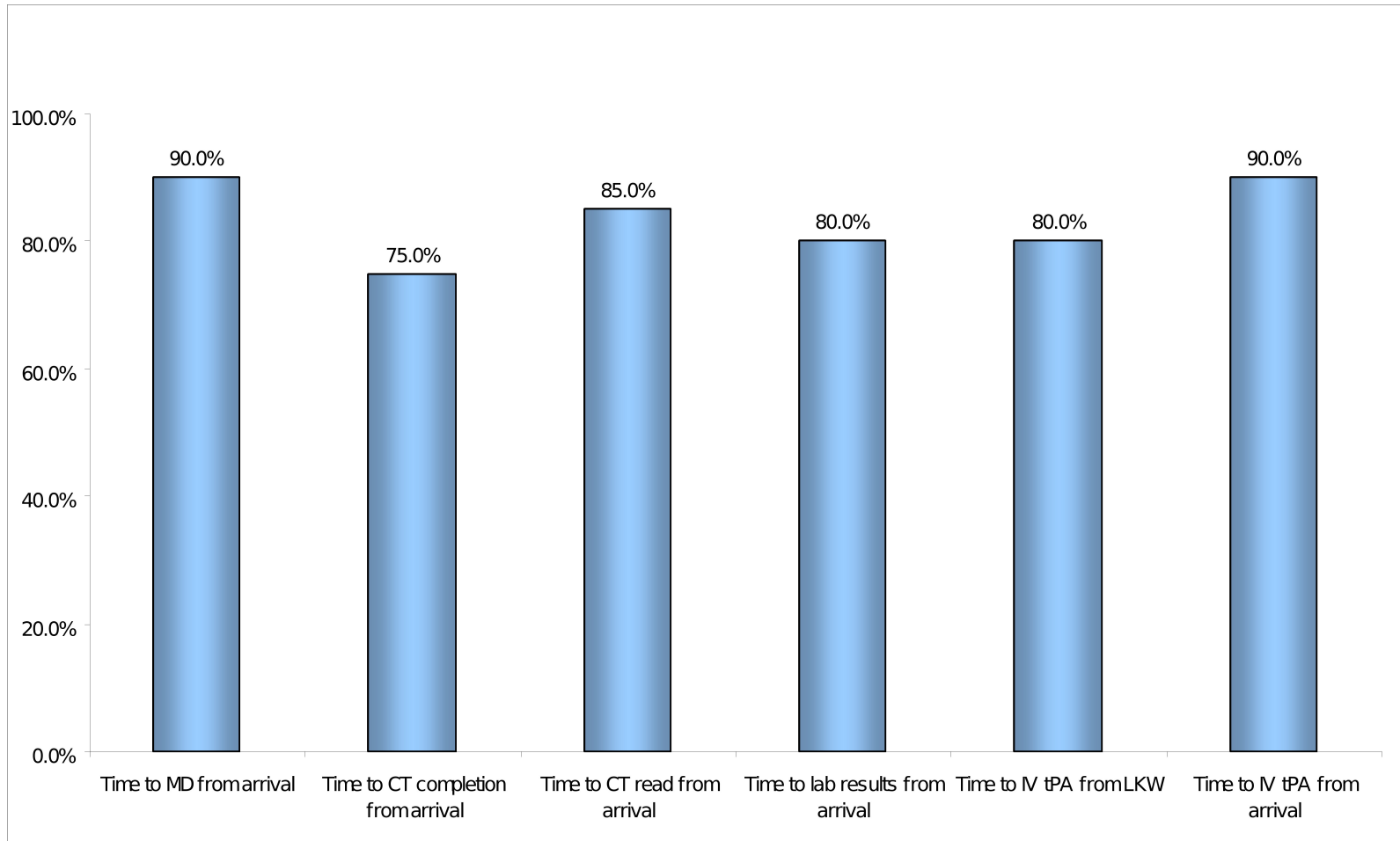


Measure	Target (minutes)	Actual (minutes)	Achieved Target
Time to arrival from LKW	-	100	-
Time to MD from arrival	10	2	●
Time to CT completion from arrival	25	14	●
Time to CT read from arrival	45	22	●
Time to lab results from arrival	45	30	●
Time to IV tPA from LKW	270	135	●
Time to IV tPA from arrival	60	35	●

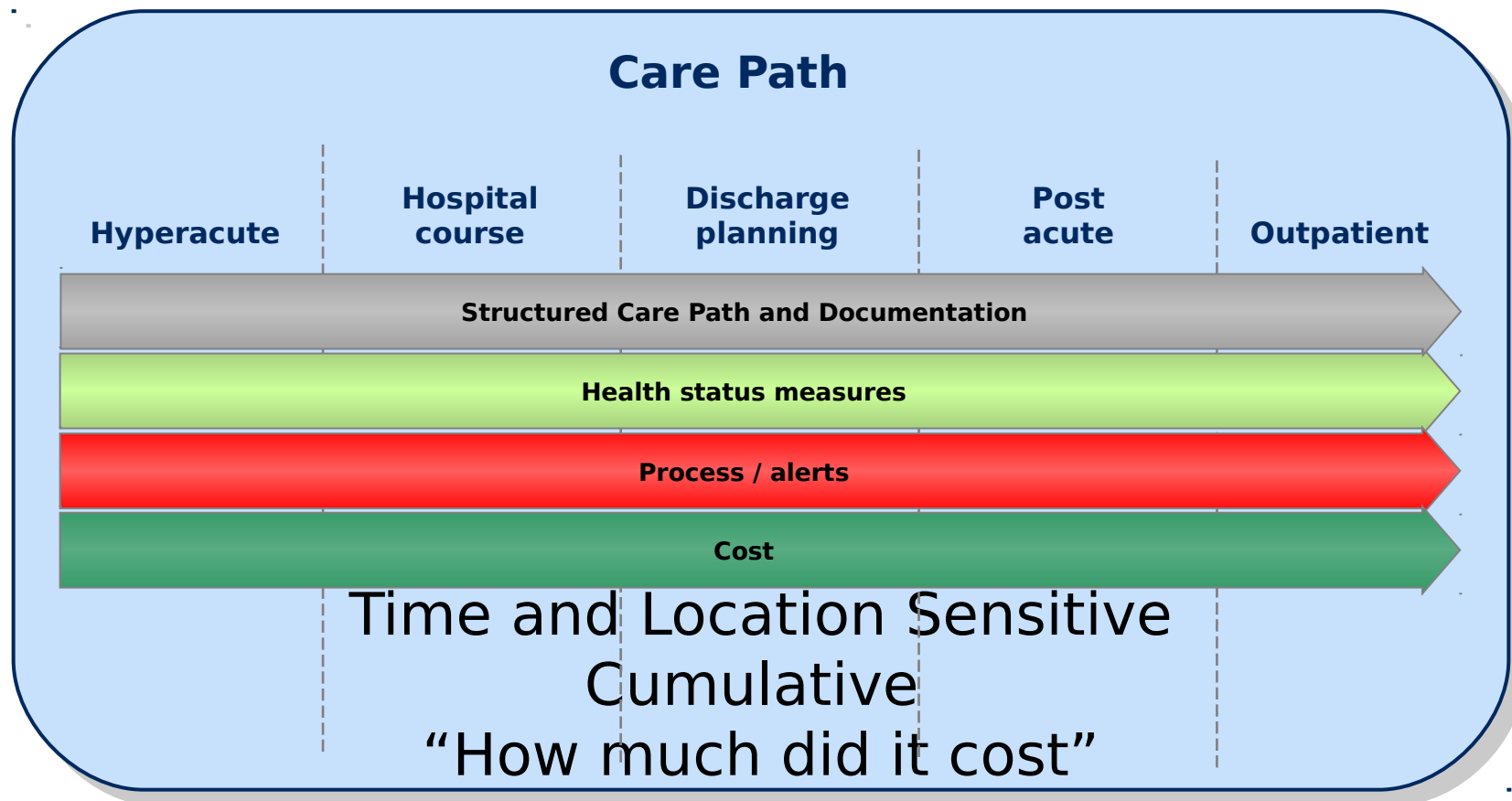
Performance Measure	Completed
Anti-thrombotic by Hospital Day 2	●
Patient Education	●
Smoking Cessation	
Swallow Screen	●
OT/PT	
DVT Prophylaxis	●
D/C Statin	●
D/C Anti-thrombotic	●
D/C Anti-coagulant	

# Time Variables for Acute Evaluation Main Campus System Scorecard

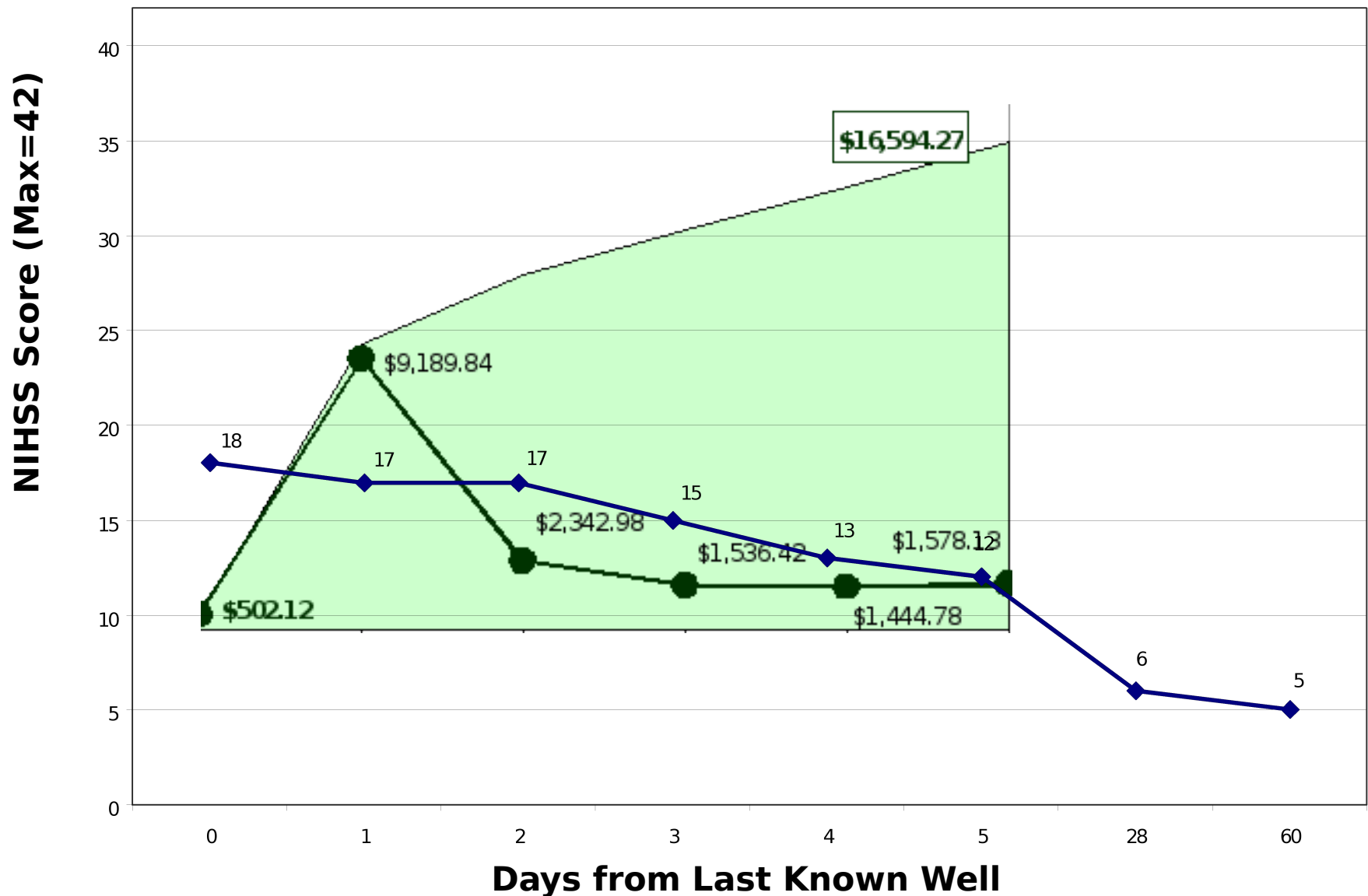
## % Compliance with Time Variable Targets



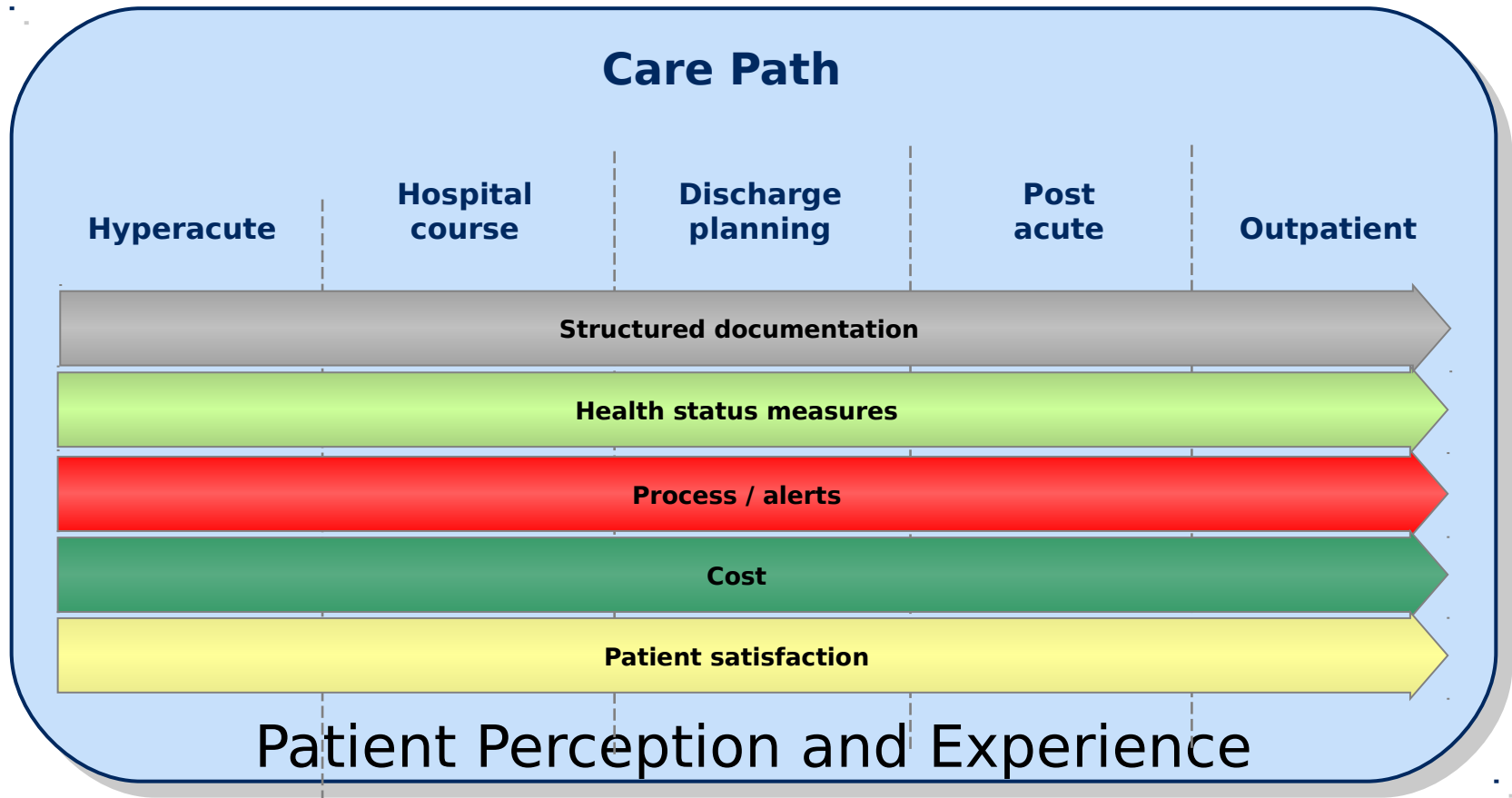
# Cleveland Clinic Care Pathways



# Cost



# Cleveland Clinic Care Pathways



# Inpatient Satisfaction Survey - Chart



Date Range: 10/25/2010 to 10/29/2010

Location(s): H060

			1) Expectation	2) Know Plan	3) Address Needs	4) In Charge	5) Patient Comfort	6) MD Communication	7) Visitor Comfort	Total Score
Tue	22110985	H060-22	5	5	5	Y	5	5	5	30
	55294526	H060-05	5	5	5	Y	5	5	5	30
	60378924	H060-17	5	5	5	Y	5	5	5	30
	21895806	H060-07	5	5	4	Y	5	5	4	28
	55908370	H060-16	5	4	4	Y	5	5	5	28
	23957159	H060-26	3	5	3	Y	4	5	4	24
	50753468	H060-09	4	5	5	Y	4	5	5	28
	49367368	H060-15	5							5
	33368844	H060-27	5	5	5	Y	5	1	5	26
	19710637	H060-13	4	4	5	Y	5	4	5	27
	39020564	H060-01	4	4	5	Y	5	5	5	28
	49370164	H060-06	3	1	1	N	5	3	4	17
Wed	49267894	H060-01	5	4	4	Y	5	4	4	26
	26869285	H060-15	5	5	5	Y	5	5	5	30
	40862200	H060-03	5	5	5	Y	5	5	5	30
	40862200	H060-03	5	5	5	Y	5	5	5	30
	10232031	H060-10	5	4	4	N	5	4	5	27
	45511138	H060-12	4	4	3	Y	4	4	5	24
	44272008	H060-08	4	2	4	N	3	5	4	22
	46667972	H060-21	4	3	4	Y	4	4	5	24
	18149290	H060-11	4	3	4	N	4	4	4	23

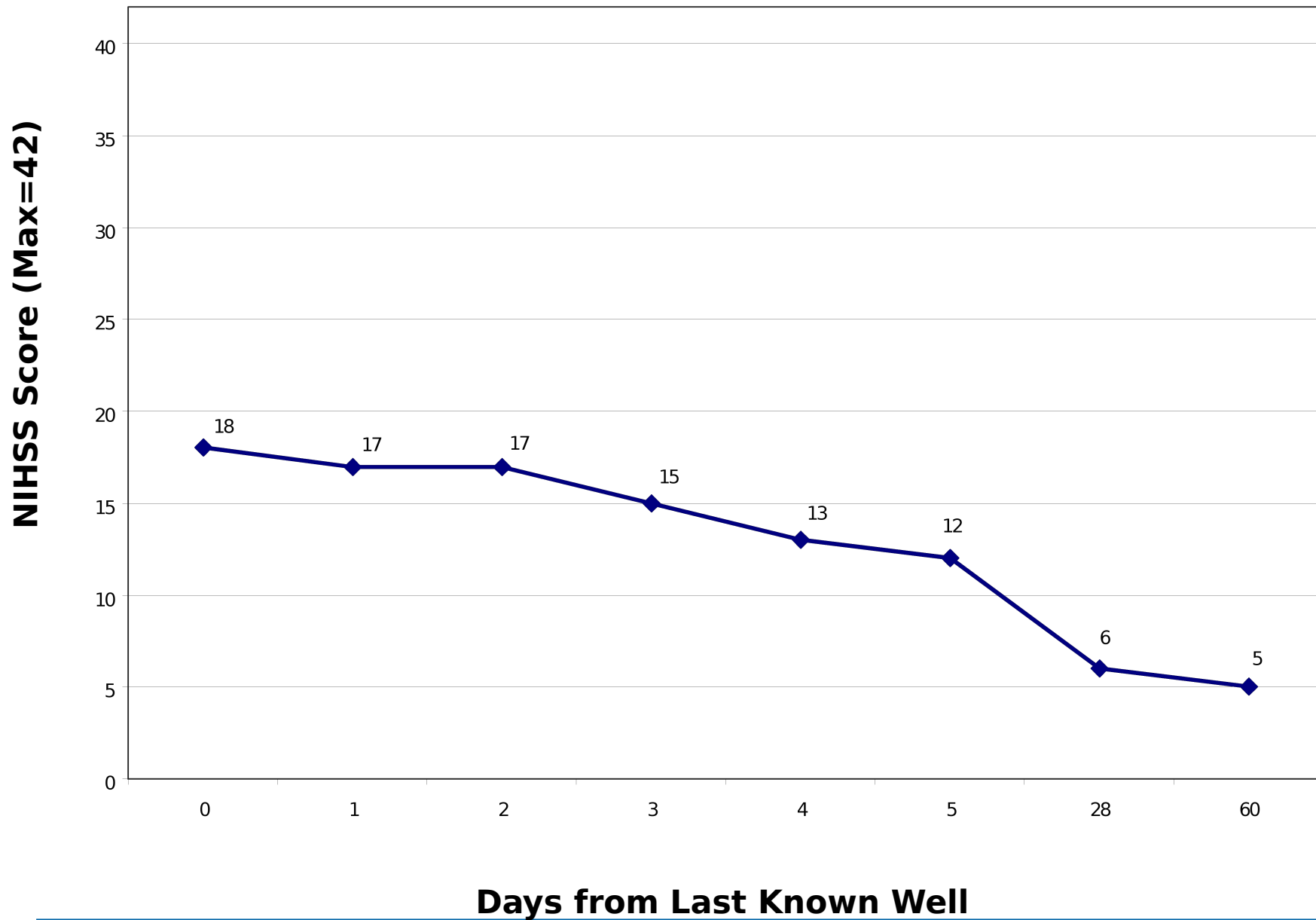


# Longitudinal NIH Stroke Scale

Measures severity of stroke

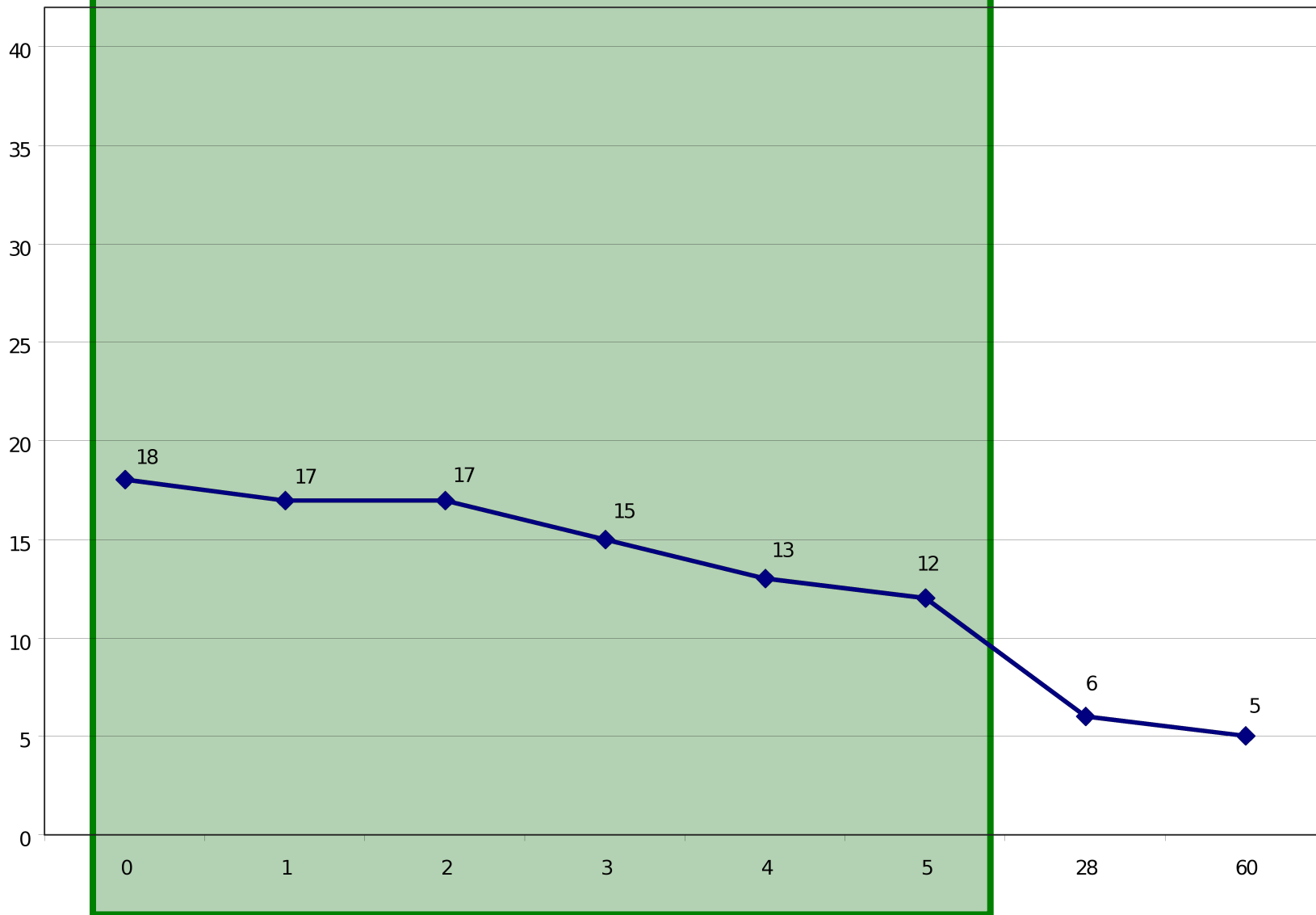
Standardized indicator of stroke patient state

Higher scores indicate greater disability (range 0-42)



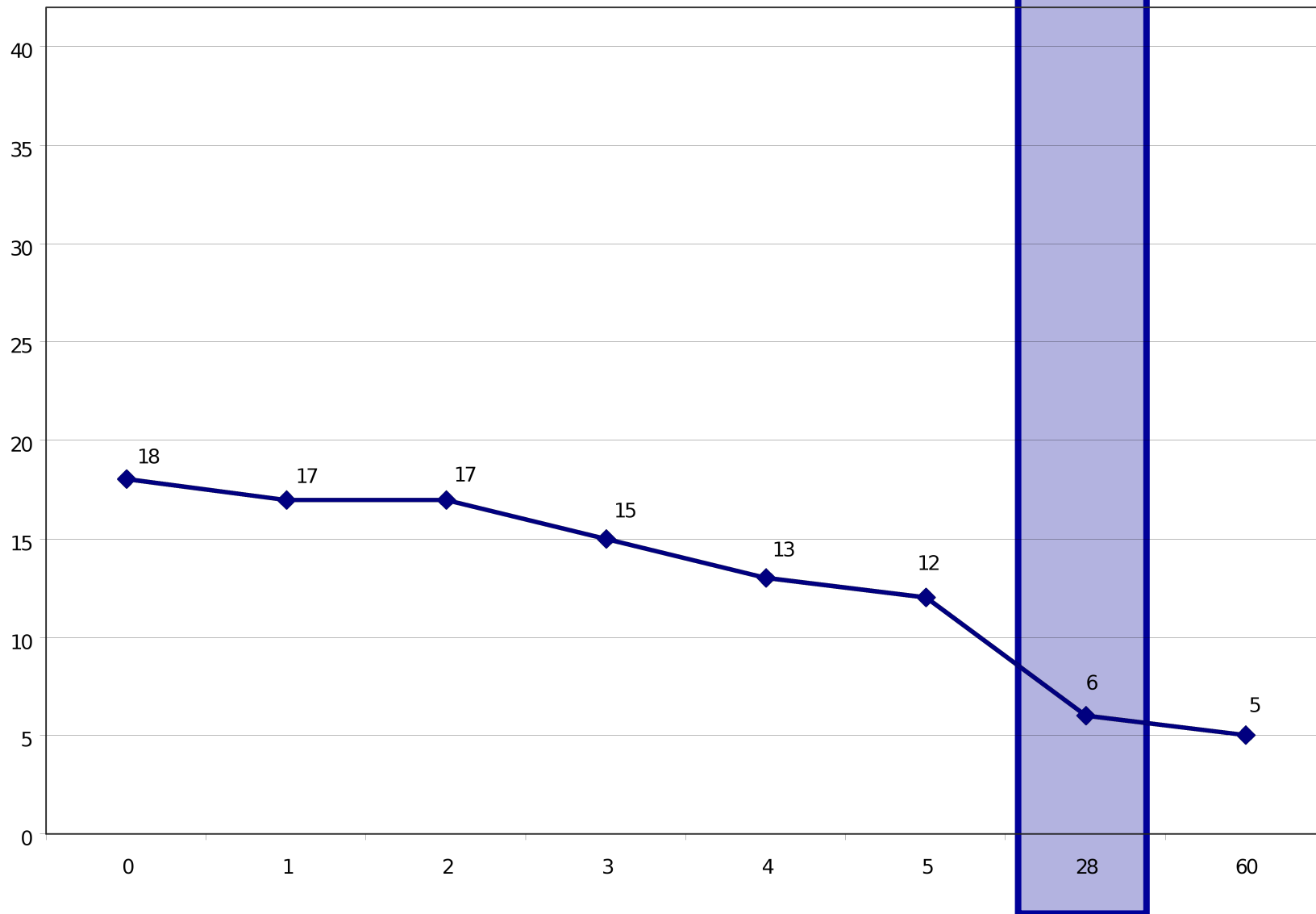
NIHSS Score (Max=42)

Inpatient NIHSS



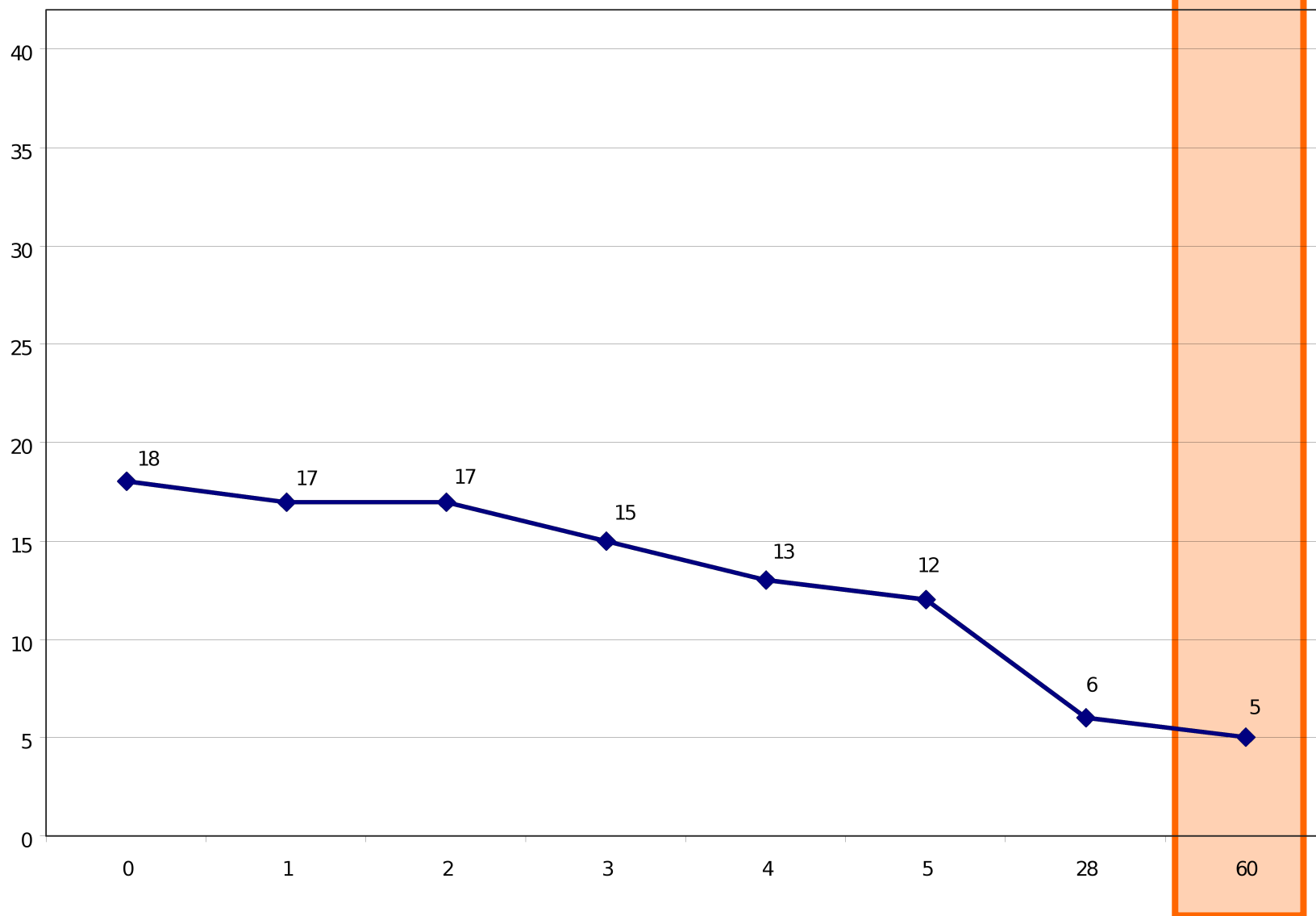
Days from Last Known Well

NIHSS Score (Max=42)

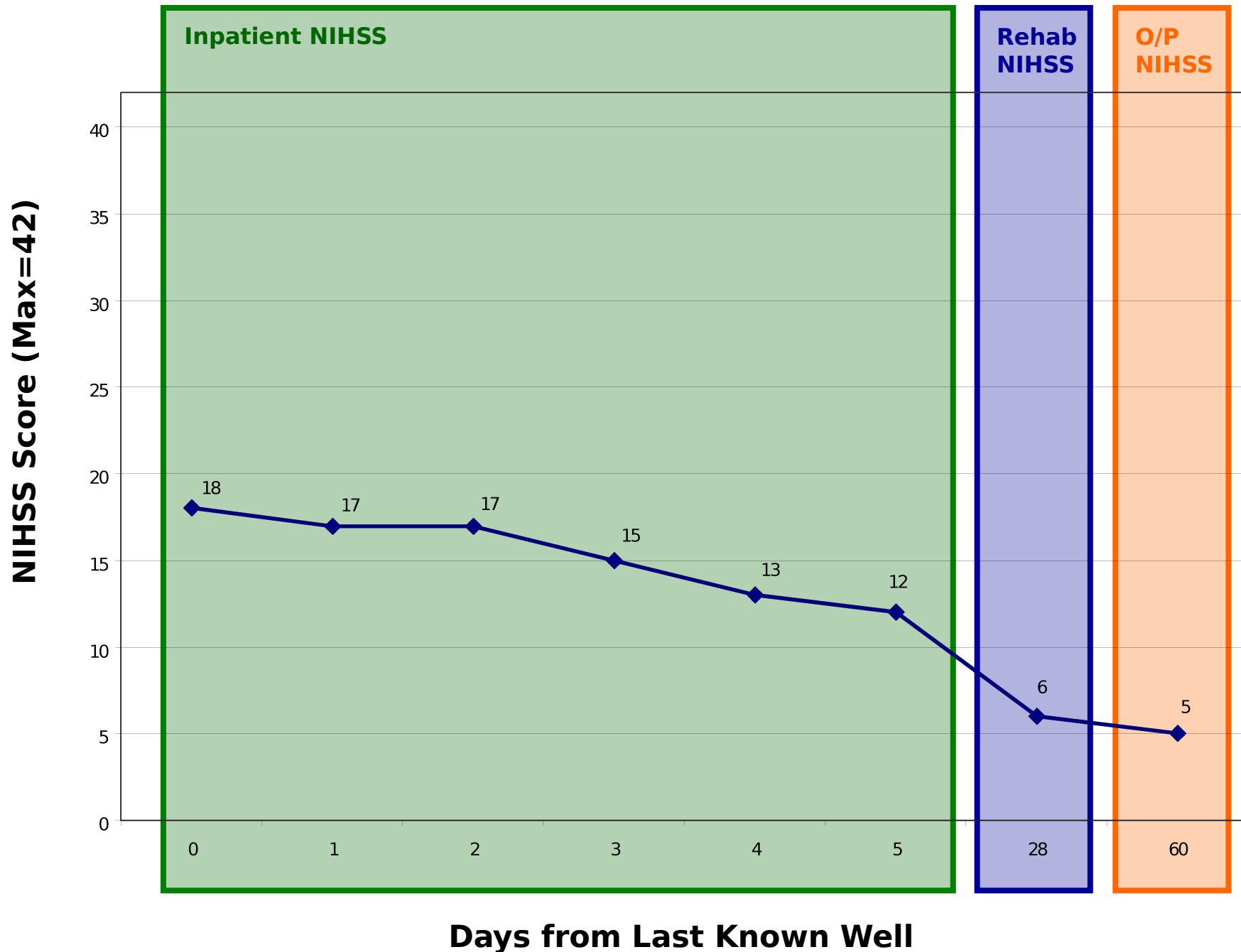


Days from Last Known Well

NIHSS Score (Max=42)



Days from Last Known Well



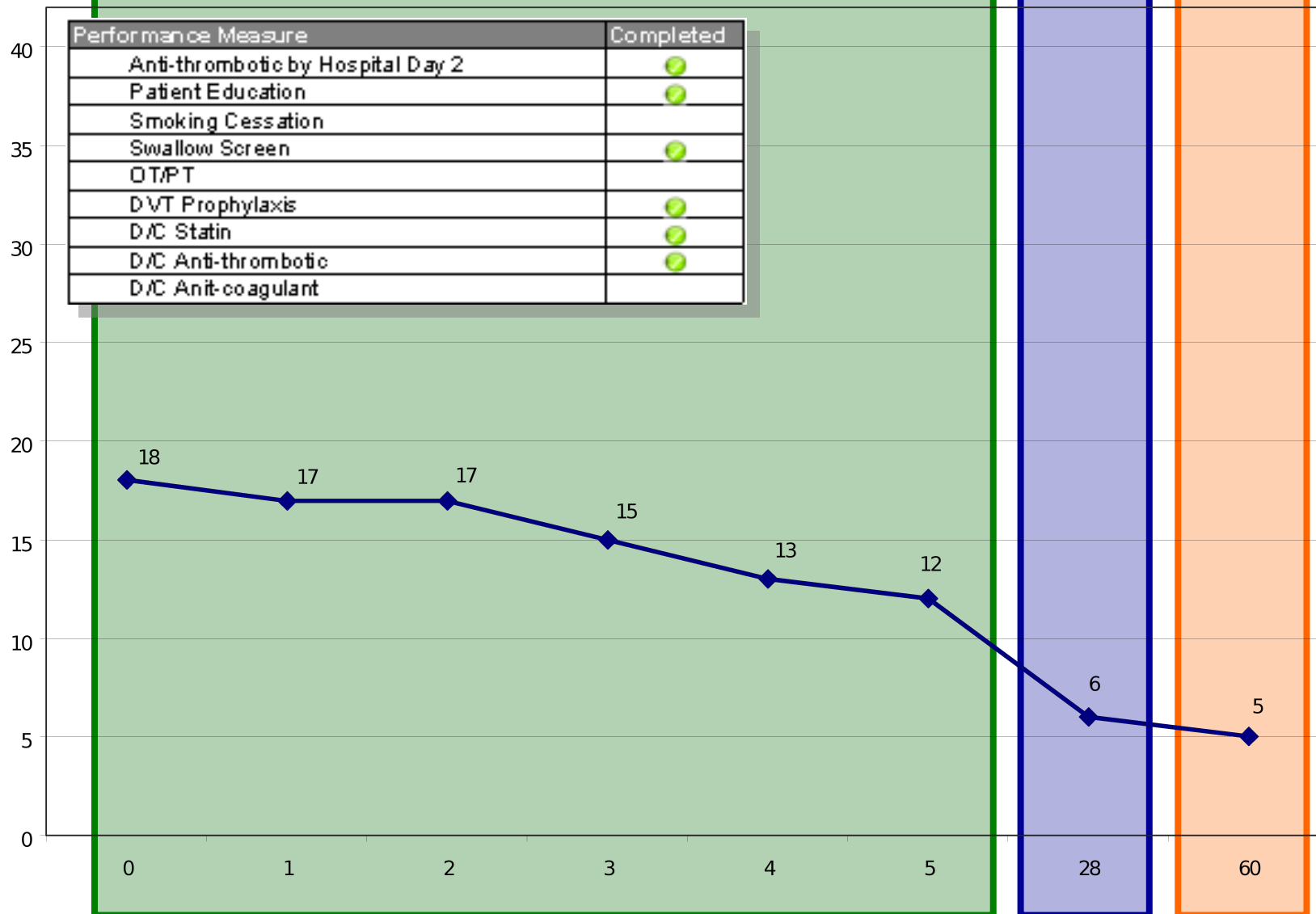
NIHSS Score (Max=42)

## Inpatient NIHSS

Performance Measure	Completed
Anti-thrombotic by Hospital Day 2	✔
Patient Education	✔
Smoking Cessation	
Swallow Screen	✔
OT/PT	
DVT Prophylaxis	✔
D/C Statin	✔
D/C Anti-thrombotic	✔
D/C Anti-coagulant	

## Rehab NIHSS

## O/P NIHSS

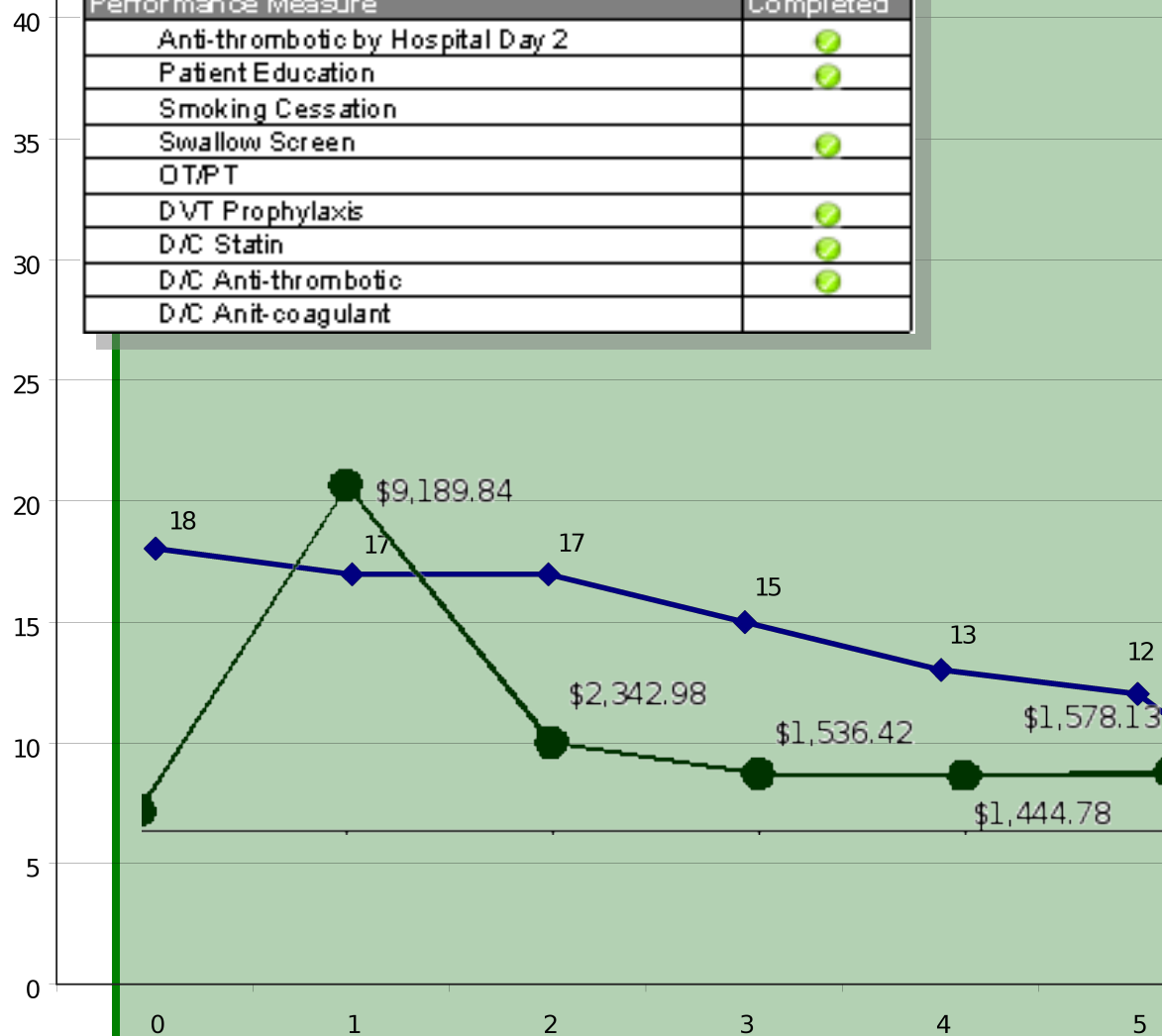


Days from Last Known Well

NIHSS Score (Max=42)

## Inpatient NIHSS

Performance Measure	Completed
Anti-thrombotic by Hospital Day 2	✔
Patient Education	✔
Smoking Cessation	
Swallow Screen	✔
OT/PT	
DVT Prophylaxis	✔
D/C Statin	✔
D/C Anti-thrombotic	✔
D/C Anti-coagulant	



## Rehab NIHSS

28

## O/P NIHSS

60

Days from Last Known Well

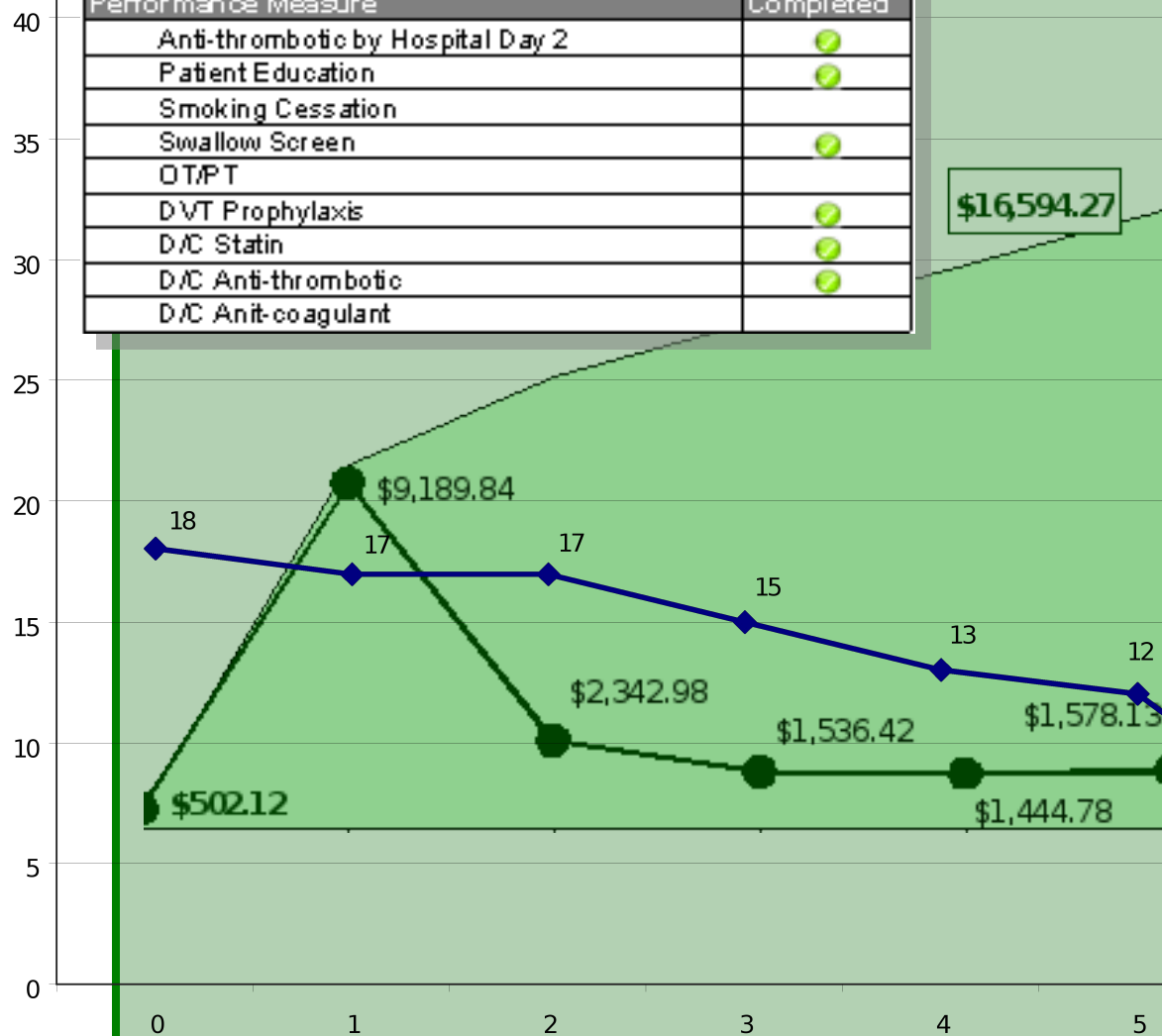


NIHSS Score (Max=42)

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OT/PT	
DVT Prophylaxis	✔
D/C Statin	✔
D/C Anti-thrombotic	✔
D/C Anti-coagulant	✔

\$16,594.27



## Rehab NIHSS

## O/P NIHSS

28

60

Days from Last Known Well

# Care Path Summary

A next generation system to capture and analyze a complete array of clinical and operational information associated with standardized patient encounters that will allow healthcare providers to improve the quality and efficiency of patient care.

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Allows providers to capture, track, and manage outcomes, process, cost and patient experience measures longitudinally and across venues.

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Provides point of care recommendations and reporting at key points in the diagnosis and treatment based on Cleveland Clinic protocols.

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A next generation system to capture and analyze a complete array of clinical and operational information associated with standardized patient encounters that will allow healthcare providers to improve the quality and efficiency of patient care.

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Disease-specific EMR modules capture consensus and evidence based best practice protocols for treatment.

Provides point of care recommendations and reporting at key points in the diagnosis and treatment based on Cleveland Clinic protocols.

Integrates traditional encounter-based, note-centric EMR information capture with discrete data representation and process navigation.

# Next steps

## Stroke

Up, running and guiding care

1year difficult build

10 more Care Paths in the next 2 years

Make the Care Path agnostic with respect to EMR

# High Value Healthcare Collaborative

**Mission: Improve healthcare quality and disseminate best practices, while reducing costs.**

Cleveland Clinic, Dartmouth-Hitchcock, Denver Health, Geisinger Health System, Intermountain Healthcare and Mayo Clinic.

Combined patient population of more than 10 million.

Data analysis performed by The Dartmouth Institute for Health Policy and Clinical Practice.

Share data on outcomes and clinical protocols for selected conditions and treatments to arrive at optimal care models, which can be implemented by many other healthcare systems across the country.



# High Value Healthcare Collaborative

**The Cleveland Clinic is honored to nominate  
the Military Health System as an Affiliate  
Member in the High Value Healthcare  
Collaborative**

# Challenge and Opportunity

